Name:

at1119paper: Complete the Square, b = odd (v501)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 59x = -598$$

Add $\left(\frac{-59}{2}\right)^2$, which equals $\frac{3481}{4}$, to both sides of the equation.

$$x^2 - 59x + \frac{3481}{4} = \frac{1089}{4}$$

Factor the left side.

$$\left(x + \frac{-59}{2}\right)^2 = \frac{1089}{4}$$

Undo the squaring.

$$x + \frac{-59}{2} = \frac{-33}{2} \quad \text{or} \quad x + \frac{-59}{2} = \frac{33}{2}$$
$$x = \frac{59 - 33}{2} \quad \text{or} \quad x = \frac{59 + 33}{2}$$
$$x = 13 \quad \text{or} \quad x = 46$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 + 55x = -294$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 + 51x \;=\; 1800$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 + 17x \;=\; 38$$

Name:

at1119paper: Complete the Square, b = odd (v502)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 27x = -176$$

Add $\left(\frac{-27}{2}\right)^2$, which equals $\frac{729}{4}$, to both sides of the equation.

$$x^2 - 27x + \frac{729}{4} = \frac{25}{4}$$

Factor the left side.

$$\left(x + \frac{-27}{2}\right)^2 = \frac{25}{4}$$

Undo the squaring.

$$x + \frac{-27}{2} = \frac{-5}{2} \quad \text{or} \quad x + \frac{-27}{2} = \frac{5}{2}$$

$$x = \frac{27-5}{2} \quad \text{or} \quad x = \frac{27+5}{2}$$

$$x = 11 \quad \text{or} \quad x = 16$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 + 35x = 294$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 + 23x \;=\; 1274$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 - 49x \;=\; -598$$

Name:

at1119paper: Complete the Square, b = odd (v503)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 37x = -312$$

Add $\left(\frac{-37}{2}\right)^2$, which equals $\frac{1369}{4}$, to both sides of the equation.

$$x^2 - 37x + \frac{1369}{4} = \frac{121}{4}$$

Factor the left side.

$$\left(x + \frac{-37}{2}\right)^2 = \frac{121}{4}$$

Undo the squaring.

$$x + \frac{-37}{2} = \frac{-11}{2} \quad \text{or} \quad x + \frac{-37}{2} = \frac{11}{2}$$

$$x = \frac{37 - 11}{2} \quad \text{or} \quad x = \frac{37 + 11}{2}$$

$$x = 13 \quad \text{or} \quad x = 24$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 - 43x = -462$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 - 5x \;=\; 266$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 + 15x \;=\; 76$$

Name:

at1119paper: Complete the Square, b = odd (v504)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 53x = -546$$

Add $\left(\frac{-53}{2}\right)^2$, which equals $\frac{2809}{4}$, to both sides of the equation.

$$x^2 - 53x + \frac{2809}{4} = \frac{625}{4}$$

Factor the left side.

$$\left(x + \frac{-53}{2}\right)^2 = \frac{625}{4}$$

Undo the squaring.

$$x + \frac{-53}{2} = \frac{-25}{2} \quad \text{or} \quad x + \frac{-53}{2} = \frac{25}{2}$$
$$x = \frac{53 - 25}{2} \quad \text{or} \quad x = \frac{53 + 25}{2}$$
$$x = 14 \quad \text{or} \quad x = 39$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 + 21x = -54$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 + 27x \;=\; 160$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 + 47x \;=\; -522$$

Name:

at1119paper: Complete the Square, b = odd (v505)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 47x = -396$$

Add $\left(\frac{-47}{2}\right)^2$, which equals $\frac{2209}{4}$, to both sides of the equation.

$$x^2 - 47x + \frac{2209}{4} = \frac{625}{4}$$

Factor the left side.

$$\left(x + \frac{-47}{2}\right)^2 = \frac{625}{4}$$

Undo the squaring.

$$x + \frac{-47}{2} = \frac{-25}{2} \quad \text{or} \quad x + \frac{-47}{2} = \frac{25}{2}$$

$$x = \frac{47 - 25}{2} \quad \text{or} \quad x = \frac{47 + 25}{2}$$

$$x = 11 \quad \text{or} \quad x = 36$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 + 33x = 1798$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 + 31x \;=\; 1092$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 + 45x \;=\; -164$$

Name:

at1119paper: Complete the Square, $b =$ odd (v506)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 47x = -370$$

Add $\left(\frac{-47}{2}\right)^2$, which equals $\frac{2209}{4}$, to both sides of the equation.

$$x^2 - 47x + \frac{2209}{4} = \frac{729}{4}$$

Factor the left side.

$$\left(x + \frac{-47}{2}\right)^2 = \frac{729}{4}$$

Undo the squaring.

$$x + \frac{-47}{2} = \frac{-27}{2} \quad \text{or} \quad x + \frac{-47}{2} = \frac{27}{2}$$
$$x = \frac{47 - 27}{2} \quad \text{or} \quad x = \frac{47 + 27}{2}$$
$$x = 10 \quad \text{or} \quad x = 37$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 + 59x = 936$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 + 35x \;=\; -196$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 - 19x \;=\; 330$$

Name:

at1119paper: Complete the Square, b = odd (v507)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 47x = -540$$

Add $\left(\frac{-47}{2}\right)^2$, which equals $\frac{2209}{4}$, to both sides of the equation.

$$x^2 - 47x + \frac{2209}{4} = \frac{49}{4}$$

Factor the left side.

$$\left(x + \frac{-47}{2}\right)^2 = \frac{49}{4}$$

Undo the squaring.

$$x + \frac{-47}{2} = \frac{-7}{2} \quad \text{or} \quad x + \frac{-47}{2} = \frac{7}{2}$$

$$x = \frac{47 - 7}{2} \quad \text{or} \quad x = \frac{47 + 7}{2}$$

$$x = 20 \quad \text{or} \quad x = 27$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 - 35x = 344$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 - 19x \;=\; -70$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 - 33x \;=\; 720$$

Name:

at1119paper: Complete the Square, b = odd (v508)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 43x = -432$$

Add $\left(\frac{-43}{2}\right)^2$, which equals $\frac{1849}{4}$, to both sides of the equation.

$$x^2 - 43x + \frac{1849}{4} = \frac{121}{4}$$

Factor the left side.

$$\left(x + \frac{-43}{2}\right)^2 = \frac{121}{4}$$

Undo the squaring.

$$x + \frac{-43}{2} = \frac{-11}{2} \quad \text{or} \quad x + \frac{-43}{2} = \frac{11}{2}$$

$$x = \frac{43 - 11}{2} \quad \text{or} \quad x = \frac{43 + 11}{2}$$

$$x = 16 \quad \text{or} \quad x = 27$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 - 21x = 1012$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 - 5x \;=\; 336$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 - 37x \;=\; 848$$

Name:

at1119paper: Complete the Square, b = odd (v509)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 61x = -910$$

Add $\left(\frac{-61}{2}\right)^2$, which equals $\frac{3721}{4}$, to both sides of the equation.

$$x^2 - 61x + \frac{3721}{4} = \frac{81}{4}$$

Factor the left side.

$$\left(x + \frac{-61}{2}\right)^2 = \frac{81}{4}$$

Undo the squaring.

$$x + \frac{-61}{2} = \frac{-9}{2} \quad \text{or} \quad x + \frac{-61}{2} = \frac{9}{2}$$

$$x = \frac{61 - 9}{2} \quad \text{or} \quad x = \frac{61 + 9}{2}$$

$$x = 26 \quad \text{or} \quad x = 35$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 - 27x = -50$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 + 47x \;=\; 378$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 - 55x \;=\; -414$$

Name:

at1119paper: Complete the Square, b = odd (v510)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 27x = -176$$

Add $\left(\frac{-27}{2}\right)^2$, which equals $\frac{729}{4}$, to both sides of the equation.

$$x^2 - 27x + \frac{729}{4} = \frac{25}{4}$$

Factor the left side.

$$\left(x + \frac{-27}{2}\right)^2 = \frac{25}{4}$$

Undo the squaring.

$$x + \frac{-27}{2} = \frac{-5}{2} \quad \text{or} \quad x + \frac{-27}{2} = \frac{5}{2}$$

$$x = \frac{27-5}{2} \quad \text{or} \quad x = \frac{27+5}{2}$$

$$x = 11 \quad \text{or} \quad x = 16$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 - 45x = 2044$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 - 31x \;=\; 1566$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 - 49x \;=\; -588$$

Name:

at1119paper: Complete the Square, $b =$ odd (v511)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 41x = -348$$

Add $\left(\frac{-41}{2}\right)^2$, which equals $\frac{1681}{4}$, to both sides of the equation.

$$x^2 - 41x + \frac{1681}{4} = \frac{289}{4}$$

Factor the left side.

$$\left(x + \frac{-41}{2}\right)^2 = \frac{289}{4}$$

Undo the squaring.

$$x + \frac{-41}{2} = \frac{-17}{2} \quad \text{or} \quad x + \frac{-41}{2} = \frac{17}{2}$$

$$x = \frac{41 - 17}{2} \quad \text{or} \quad x = \frac{41 + 17}{2}$$

$$x = 12 \quad \text{or} \quad x = 29$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 - 37x = 1820$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 + 23x \;=\; 288$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 + 57x \;=\; -392$$

Name:

at1119paper: Complete the Square, b = odd (v512)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 61x = -624$$

Add $\left(\frac{-61}{2}\right)^2$, which equals $\frac{3721}{4}$, to both sides of the equation.

$$x^2 - 61x + \frac{3721}{4} = \frac{1225}{4}$$

Factor the left side.

$$\left(x + \frac{-61}{2}\right)^2 = \frac{1225}{4}$$

Undo the squaring.

$$x + \frac{-61}{2} = \frac{-35}{2} \quad \text{or} \quad x + \frac{-61}{2} = \frac{35}{2}$$

$$x = \frac{61 - 35}{2} \quad \text{or} \quad x = \frac{61 + 35}{2}$$

$$x = 13 \quad \text{or} \quad x = 48$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 - 31x = 1242$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 - 25x \;=\; -84$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 - 57x \;=\; -630$$

Name:

at1119paper: Complete the Square, b = odd (v513)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 59x = -714$$

Add $\left(\frac{-59}{2}\right)^2$, which equals $\frac{3481}{4}$, to both sides of the equation.

$$x^2 - 59x + \frac{3481}{4} = \frac{625}{4}$$

Factor the left side.

$$\left(x + \frac{-59}{2}\right)^2 = \frac{625}{4}$$

Undo the squaring.

$$x + \frac{-59}{2} = \frac{-25}{2} \quad \text{or} \quad x + \frac{-59}{2} = \frac{25}{2}$$
$$x = \frac{59 - 25}{2} \quad \text{or} \quad x = \frac{59 + 25}{2}$$
$$x = 17 \quad \text{or} \quad x = 42$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 - 37x = -232$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 - 41x \;=\; 230$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 + 11x \;=\; 1230$$

Name:

at1119paper: Complete the Square, b = odd (v514)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 47x = -442$$

Add $\left(\frac{-47}{2}\right)^2$, which equals $\frac{2209}{4}$, to both sides of the equation.

$$x^2 - 47x + \frac{2209}{4} = \frac{441}{4}$$

Factor the left side.

$$\left(x + \frac{-47}{2}\right)^2 = \frac{441}{4}$$

Undo the squaring.

$$x + \frac{-47}{2} = \frac{-21}{2} \quad \text{or} \quad x + \frac{-47}{2} = \frac{21}{2}$$

$$x = \frac{47 - 21}{2} \quad \text{or} \quad x = \frac{47 + 21}{2}$$

$$x = 13 \quad \text{or} \quad x = 34$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 - 31x = -58$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 + 43x \;=\; -456$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 + 7x \;=\; 450$$

Name:

at1119paper: Complete the Square, b = odd (v515)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 55x = -414$$

Add $\left(\frac{-55}{2}\right)^2$, which equals $\frac{3025}{4}$, to both sides of the equation.

$$x^2 - 55x + \frac{3025}{4} = \frac{1369}{4}$$

Factor the left side.

$$\left(x + \frac{-55}{2}\right)^2 = \frac{1369}{4}$$

Undo the squaring.

$$x + \frac{-55}{2} = \frac{-37}{2} \quad \text{or} \quad x + \frac{-55}{2} = \frac{37}{2}$$
$$x = \frac{55 - 37}{2} \quad \text{or} \quad x = \frac{55 + 37}{2}$$
$$x = 9 \quad \text{or} \quad x = 46$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 - 49x = -418$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 - 61x \;=\; 2492$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 - 31x \;=\; 180$$

Name:

at1119paper: Complete the Square, b = odd (v516)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 39x = -270$$

Add $\left(\frac{-39}{2}\right)^2$, which equals $\frac{1521}{4}$, to both sides of the equation.

$$x^2 - 39x + \frac{1521}{4} = \frac{441}{4}$$

Factor the left side.

$$\left(x + \frac{-39}{2}\right)^2 = \frac{441}{4}$$

Undo the squaring.

$$x + \frac{-39}{2} = \frac{-21}{2} \quad \text{or} \quad x + \frac{-39}{2} = \frac{21}{2}$$

$$x = \frac{39 - 21}{2} \quad \text{or} \quad x = \frac{39 + 21}{2}$$

$$x = 9 \quad \text{or} \quad x = 30$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 + 7x = 294$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 + 59x \;=\; -868$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 + 47x \;=\; 1898$$

Name:

at1119paper: Complete the Square, b = odd (v517)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 53x = -396$$

Add $\left(\frac{-53}{2}\right)^2$, which equals $\frac{2809}{4}$, to both sides of the equation.

$$x^2 - 53x + \frac{2809}{4} = \frac{1225}{4}$$

Factor the left side.

$$\left(x + \frac{-53}{2}\right)^2 = \frac{1225}{4}$$

Undo the squaring.

$$x + \frac{-53}{2} = \frac{-35}{2} \quad \text{or} \quad x + \frac{-53}{2} = \frac{35}{2}$$
$$x = \frac{53 - 35}{2} \quad \text{or} \quad x = \frac{53 + 35}{2}$$
$$x = 9 \quad \text{or} \quad x = 44$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 + 19x = 1316$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 + 31x \;=\; -234$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 + 7x \;=\; 294$$

Name:

at1119paper: Complete the Square, b = odd (v518)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 59x = -814$$

Add $\left(\frac{-59}{2}\right)^2$, which equals $\frac{3481}{4}$, to both sides of the equation.

$$x^2 - 59x + \frac{3481}{4} = \frac{225}{4}$$

Factor the left side.

$$\left(x + \frac{-59}{2}\right)^2 = \frac{225}{4}$$

Undo the squaring.

$$x + \frac{-59}{2} = \frac{-15}{2} \quad \text{or} \quad x + \frac{-59}{2} = \frac{15}{2}$$

$$x = \frac{59 - 15}{2} \quad \text{or} \quad x = \frac{59 + 15}{2}$$

$$x = 22 \quad \text{or} \quad x = 37$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 + 57x = 1638$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 - 13x \;=\; 264$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 - 37x \;=\; -300$$

Name:

at1119paper: Complete the Square, $b =$ odd (v519)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 35x = -264$$

Add $\left(\frac{-35}{2}\right)^2$, which equals $\frac{1225}{4}$, to both sides of the equation.

$$x^2 - 35x + \frac{1225}{4} = \frac{169}{4}$$

Factor the left side.

$$\left(x + \frac{-35}{2}\right)^2 = \frac{169}{4}$$

Undo the squaring.

$$x + \frac{-35}{2} = \frac{-13}{2} \quad \text{or} \quad x + \frac{-35}{2} = \frac{13}{2}$$
$$x = \frac{35 - 13}{2} \quad \text{or} \quad x = \frac{35 + 13}{2}$$
$$x = 11 \quad \text{or} \quad x = 24$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 + 23x = 78$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 - 25x \;=\; 1034$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 + 5x \;=\; 66$$

Name:

at1119paper: Complete the Square, b = odd (v520)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 53x = -520$$

Add $\left(\frac{-53}{2}\right)^2$, which equals $\frac{2809}{4}$, to both sides of the equation.

$$x^2 - 53x + \frac{2809}{4} = \frac{729}{4}$$

Factor the left side.

$$\left(x + \frac{-53}{2}\right)^2 = \frac{729}{4}$$

Undo the squaring.

$$x + \frac{-53}{2} = \frac{-27}{2} \quad \text{or} \quad x + \frac{-53}{2} = \frac{27}{2}$$
$$x = \frac{53 - 27}{2} \quad \text{or} \quad x = \frac{53 + 27}{2}$$
$$x = 13 \quad \text{or} \quad x = 40$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 + 7x = 330$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 - 45x \;=\; 1656$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 + 55x \;=\; 2106$$